

CLAIMS

1. A manufacturing apparatus for a rubber sheet reinforced with a cord comprising:

5 a pair of cylindrical rotating bodies rotating in the same direction is disposed an axial direction of a cylinder obliquely from parallel only predefined angle,

a supply guide supplying a rubber coated cord group to the cylindrical rotating body,

10 a cylindrical rubber sheet formed by spirally wrapping continuously contacting with each other the rubber coated cord on a surface of the pair of cylindrical rotating bodies by a rotation of the pair of cylindrical rotating bodies,

and the cylindrical rubber sheet is formed to send on the pair of cylindrical rotating bodies to an axial direction of a cylinder.

2. A manufacturing apparatus for a rubber sheet reinforced with a cord
15 according to claim 1, wherein at least one of said pair of cylindrical rotating bodies is formed to be disposed small roller groups of plural number on a side surface of a cylinder.

3. A manufacturing apparatus for a rubber sheet reinforced with a cord according to claim 1, wherein it is formed to vary a diameter of said cylindrical
20 rubber sheet according to vary a center distance between said pair of cylindrical rotating bodies.

4. A manufacturing apparatus for a rubber sheet reinforced with a cord according to claim 1, wherein it is formed to be able to fine adjust a return
25 position of a rubber coated cord group according to provide a push over roller guide in a process returning to the former cylindrical rotating body after a rubber coated cord group wrapped around between said pair of cylindrical rotation bodies has made a circuit.

5. A manufacturing apparatus for a rubber sheet reinforced with a cord comprising:

small diameter roller groups of plural number disposed on a side surface of a cylinder,

5 each axis direction of small rollers of the plural number formed of a cylindrical rotating body disposing obliquely a predefined angle from parallel with an axis direction of a nearby small roller,

a supply guide supplying a rubber coated cord to the cylindrical rotating body,

10 a cylindrical rubber sheet formed by continuously spirally wrapping the rubber coated cord group to contact with each other on a surface of the cylindrical rotating body by a rotation of the cylindrical rotating body,

and the cylindrical rubber sheet is formed to sent on the cylindrical rotating body to an axial direction of a cylinder.

15 6. A manufacturing apparatus for a rubber sheet reinforced with a cord according to claim 5, wherein in said cylindrical rotating body, it is formed to be able to vary a diameter of a cylinder by varying a center distance of said small roller group.

7. A manufacturing apparatus for a rubber sheet reinforced with a cord
20 according to claim 1 or claim 5, wherein it is formed to conduct a push over to contact a cord group a and b with each other by providing a pair of zipper roller guides on each cord group a and b when forming a cylindrical rubber sheet continuously spirally wrapping a rubber coated cord group a supplying a rubber coated cord group to said cylindrical rotating body through said supply guide
25 and a rubber coated cord group b which has made a circuit already wrapped around on the cylindrical rotating body.

8. A manufacturing apparatus for a rubber sheet reinforced with a cord

according to claim 2 or claim 5, wherein surface length of a roller transporting each cylindrical rubber sheet of said small diameter roller formed of said cylindrical rotating body is 1.5 times or more and 10 times or less of width of a rubber coated cord group.

5 9. A manufacturing apparatus for a rubber sheet reinforced with a cord according to claim 2 or claim 5, wherein each roller of said small diameter roller formed of said cylindrical rotating body is formed to rotate at constant surface velocity being driven.

10 10. A manufacturing apparatus for a rubber sheet reinforced with a cord according to claim 1 or claim 5, wherein it further has a presser tool to press said cylindrical rubber sheet.

15 11. A manufacturing apparatus for a rubber sheet reinforced with a cord according to claim 1 or claim 5, wherein said cylindrical rubber sheet being formed by wrapping around on said cylindrical rotating body is cut away spirally according to further having a cutter in a manufacturing apparatus and it is formed to manufacture a rubber sheet arranged a cord in predefined angle α against a longitudinal direction of a sheet.

20 12. A manufacturing apparatus for a rubber sheet reinforced with a cord according to claim 1 or claim 5, wherein a rubber extruder having a rubber coating die is provided in a previous step of said supply guide, guiding to said cylindrical rotating body through the supply guide while forming a rubber coated cord group continuously according to be formed to pass a cord through the rubber coating die coating rubber extruded from the rubber extruder.

25 13. A manufacturing apparatus for a rubber sheet reinforced with a cord according to claim 1 or claim 5, wherein a cord supplying section have a twister or an assembly winder, a cord supplying to said cylindrical rotating body is formed to unreel giving a twist by a twister or an assembly winder and is

formed to be guided to said cylindrical rotating body through said supply guide.

14. A manufacturing method for a rubber sheet reinforced with a cord, comprising the steps of:

forming a cylindrical rubber sheet by spirally wrapping continuously the
5 rubber coated cord group contacting with each other according to supply a rubber coated cord group through a supply guide to a pair of cylindrical rotating bodies rotating in the same direction disposed an axial direction of a cylinder obliquely from parallel only a predefined angle,

and sending the cylindrical rubber sheet on the pair of cylindrical rotating
10 bodies to an axial direction of a cylinder.

15. A manufacturing method for a rubber sheet reinforced with a cord according to claim 14, comprising the step, at least one of said pair of cylindrical rotating bodies is a cylindrical rotating body disposing small diameter roller groups of plural number on side surface of a cylinder.

15 16. A manufacturing method for a rubber sheet reinforced with a cord according to claim 14, comprising to the step to vary a diameter of said cylindrical rubber sheet by varying a center distance of said pair of cylindrical rotating bodies.

17. A manufacturing method for a rubber sheet reinforced with a cord
20 according to claim 14, comprising the step of fine adjust a returning position of a rubber coated cord by a push over roller guide provided in a process to return to the former cylindrical rotating body after a rubber coated cord group has made a circuit between said pair of cylindrical rotating bodies.

18. A manufacturing method for a rubber sheet reinforced with a cord,
25 comprising the steps of:

disposing small diameter roller groups of plural number on a side surface of a cylinder,

forming of a cylindrical rotating body by disposing each axial direction of small diameter rollers of the plural number obliquely only predefined angle from parallel with an axial direction of nearby small diameter rollers,

supplying a rubber coated cord group to a surface of the cylindrical rotating body through a supply guide by rotation of the cylindrical rotating body,

forming a cylindrical rubber sheet by spirally wrapping continuously the rubber coated cord group contacting with each other,

and sending the cylindrical rubber sheet on the cylindrical rotating body to an axial direction of a cylinder.

19. A manufacturing method for a rubber sheet reinforced with a cord according to claim 18, comprising the step of varying a cylinder diameter of said cylindrical rubber sheet by varying a center distance of said small diameter group formed of said cylindrical rotating body.

20. A manufacturing method for a rubber sheet reinforced with a cord according to claim 14 or claim 18, comprising the step of conducting a push over to contact cord groups a and b with each other by a pair of zipper roller guide provided on each cord group a and b when forming a cylindrical rubber sheet continuously wrapping spirally a rubber coated cord group a supplying a rubber coated cord group to said cylindrical rotating body through said supply guide and rubber coated cord group b which has already made a circuit wrapped around on the cylindrical rotating body.

21. A manufacturing method for a rubber sheet reinforced with a cord according to claim 14 or claim 18, comprising the step of manufacturing a rubber sheet disposed a cord to predefined angle α against a longitudinal direction of a sheet according to cutting away spirally said cylindrical rubber sheet formed by wrapping around on said cylindrical rotating body with a

cutter.

22. A manufacturing method for a rubber sheet reinforced with a cord according to claim 14 or claim 18, comprising the step of being guided to said rotating body through said supply guide while forming continuously said rubber
5 coated cord group according to pass a cord supplied to said cylindrical rotating body through a rubber coating die coating rubber extruded from a rubber extruder.